

ON-CHIP GRADED INDEX OF REFRACTION OPTICAL WAVEGUIDE AND  
DAMASCENE METHOD OF FABRICATING THE SAME

Abstract of the Disclosure

A graded index of refraction optical waveguide is formed  
5 in interlayer dielectric material located above a substrate an  
integrated circuit-like structure. The waveguide includes a  
refractive layer of optically transmissive material  
surrounding a core of optically transmissive material within a  
trench in the dielectric material. The material of the core  
10 has a higher index of refraction than the refractive layer and  
the material of the refractive layer has a higher index of  
refraction than the dielectric material. More than one  
refractive layer may also be formed in the trench, with the  
inner refractive layer having an index of refraction higher  
15 than the outer refractive layer and less than the core.